

## CLAIMS

We claim:

1. A blind, adaptive equalizer comprising:
  - a tracking generator, wherein the generator comprises,
  - a smoothing filter for receiving a tap coefficient error estimate of a data stream and for generating a smoothed error from the estimate; and
  - a tracking unit for generating a fractional error from the smoothed error.
2. The equalizer as in claim 1 wherein the tracking generator further generates a reduced error by subtracting the fractional error from a stored smoothed error.
3. The equalizer as in claim 2 wherein the tracking generator further generates a fraction of the reduced error.
4. The equalizer as in claim 1 wherein the tracking generator further generates the smoothed error from the tap coefficient error estimate and a smoothing factor.
5. The equalizer as in claim 1 further comprising a coefficient generator for generating tap coefficients based on the fractional error.
6. The equalizer as in claim 1 further comprising an output unit for generating a converged output signal.
7. The equalizer as in claim 1 wherein the tracking generator further generates the fractional error based on the smoothed error and a coefficient adjustment factor.
8. The equalizer as in claim 7 wherein the adjustment factor is  $1/256$ .
9. The equalizer as in claim 1 wherein the tracking generator comprises a programmed medium.

10. A method for shortening the convergence time of blind adaptive equalizers comprising:
- receiving a tap coefficient error estimate of a data stream;
  - generating a smoothed error from the estimate; and
  - generating a fractional error from the smoothed error.
11. The method as in claim 10 further comprising generating a reduced error by subtracting the fractional error from a stored, smoothed error.
12. The method as in claim 11 further comprising generating a fraction of the reduced error.
13. The method as in claim 10 further comprising generating the smoothed error from the tap coefficient error estimate and a smoothing factor.
14. The method as in claim 10 further comprising generating tap coefficients based on the fractional error.
15. The method as in claim 10 further comprising generating a converged output signal.
16. The method as in claim 10 further comprising generating the fractional error based on the smoothed error and a coefficient adjustment factor.
17. The method as in claim 16 wherein the adjustment factor is  $1/256$ .